Department of Mathematics and Statistics

Colloquium Series

Knot: A Math Talk

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Abstract: A knot is a potentially knotted circle in 3-dimensional space. Knots are a powerful probe into 3- and 4-dimensional phenomena, which is why they are a central object of study in low-dimensional topology (a subfield of pure mathematics). It is known that every knot K is realized as the closure of a braid. An important invariant of K is the braid index: a numerical value that represents the minimum number of strands required to present K as the closure of some braid. In general, this knot invariant is very hard to compute! In this work, we determine the braid index of all 1-bridge braids, an infinite family of well-studied knots, which are determined by three parameters. We also present some avenues for future directions generalizing this work.

Keywords: knots, knot theory, geometry, topology, 1-bridge braids, braid index

Wed. Sep. 8, 1:05 – 1:50 pm on Zoom

For more info: www.cpp.edu/sci/mathematics-statistics/colloquium-and-newsletter/